



Unhealthy Air Events

OPERATIONAL GUIDELINE

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I. INTRODUCTION

The purpose of this operational guideline (OG) is to provide guidance for City of Portland officials to make recommendations to the Disaster Policy Council (DPC) during unhealthy air events, and to provide recommendations for curtailing certain City services. Additionally, it provides guidance on messages that could lower risks to employees’ health and wellbeing.

This policy will be solely for employees as it relates to work activities. It is geared towards wildfire smoke specifically, but could be adapted for use during extreme hot weather events, high pollution, heavy wood smoke or other fires which release hazardous chemicals or particulate matter into an urban setting.

A prolonged unhealthy air event may impact essential functions, and therefore may be an opportunity to activate a bureau Continuity of Operations Plan (COOP).

The employees at risk due to unhealthy air include, but are not limited to:

- **All staff** travelling to and from work, especially those travelling by foot, bike or public transit.
- **Firefighters and police officers** work in all quadrants of the city at all hours. Fire apparatus are equipped with self-contained breathing apparatus which are only used during emergency responses which require specific respiratory protection.
- **Field staff** in several bureaus work in all quadrants of the city beginning early in the morning.
- **Parks** employees who work outside with the community:
 - **Field staff** who work in all quadrants of the city beginning early in the morning (7 days/week; 6:30 am in the summer, and into the evening).
 - **Recreation program staff** who work with seniors and children (who may have increased sensitivities); summer camps, outdoor pools, summer lunch programs.
 - **Staff working large events sponsored and coordinated by PP&R** such as summer movies/concerts, new park grand openings, Sunday Parkways, and special celebrations.
 - **Staff working large events held at PP&R locations by a third party** such as Waterfront Blues Festival, Rose Festival, or the Portland Marathon.

II. CONCEPT OF OPERATIONS

1. RECOMMENDED CITY ACTIONS

This table outlines recommended City of Portland actions to protect employee health at each air quality level.

Air Quality Rating	AQI ¹	PM2.5 Concentration 24-hour average (micrograms/cubic meter)	Recommended City Actions
Good	0-50	0-12	None
Moderate	51-100	13-35	None

¹ Air Quality Index (AQI) and Particulate Matter (PM) 2.5 levels are from the Environmental Protection Agency (EPA) *Wildfire Smoke: A Guide for Public Health Officials*, Revised May 2016

Air Quality Rating	AQI ¹	PM2.5 Concentration 24-hour average (micrograms/cubic meter)	Recommended City Actions
Unhealthy for sensitive groups ²	101-150	36 – 55, expected to remain or worsen for several hours	<ul style="list-style-type: none"> ● PBEM Duty Officer should add AQI current and forecasted data to Daily Log. <ul style="list-style-type: none"> ○ Emergency Management Steering Committee should forward Daily Log as needed within their bureau. ● Bureau Safety Managers, managers of employees who work outside, and their employees should check recommended data sources (<i>see References section</i>). ● Bureaus with outdoor recreation activities and events should use the state toolkit guidance for schools (See References: Oregon Health Authority) to inform decisions about outdoor activities and events programming. ● At the request of any bureau, the PBEM Duty Officer can convene the Bureau Operations Coordination team to share what measures bureaus are taking, make requests or ask for guidance.
Unhealthy for all groups	151-200	56 – 150, expected to remain or worsen for several hours	<ul style="list-style-type: none"> ● Same as above. ● PBEM Duty Officer should: <ul style="list-style-type: none"> ○ Upgrade City operational level to Enhanced Operations, notify EMSC and DPC, and set a daily Situation Status Report schedule; ○ Include advice in either a DO Log update or full Sit Stat report to limit the time spent outdoors, avoid strenuous work or exercise outdoors, or any other relevant health messaging provided by Multnomah County or state agencies; and ○ Convene the Bureau Operations

² Seniors, children, and people with increased sensitivities

Air Quality Rating	AQI ¹	PM2.5 Concentration 24-hour average (micrograms/cubic meter)	Recommended City Actions
			<p style="text-align: center;">Coordination team.</p> <ul style="list-style-type: none"> ● Bureau emergency managers and COOP managers should consider activating bureau COOPs for essential outdoor functions. ● Bureau emergency managers and the DPC will read and share Sit Report as needed, and use to inform bureau safety actions. This can include notification by email and/or Everbridge alert to a pre-assigned group of bureau managers and/or employees who are working outside (see Everbridge templates below). ● Bureaus directors should approve internal bureau messaging. Everbridge text alerts should be brief, and voice recording should be completed in advance. ● Bureaus directors with staff working outdoor recreation activities and events should consider: closing outdoor pools, cancelling outdoor events, alternate work assignments, and/or flex time. ● Bureau Managers/Supervisors should: <ul style="list-style-type: none"> ○ Use discretion whether to decide to allow field worker flex time and/or alternate work assignments; and ○ Consult with Bureau Safety Managers for appropriate Personal Protective Equipment (PPE) for employees. ● PIOs should: Ramp up the Joint Information System to coordinate messaging.
Very unhealthy	201-300	151-250	<ul style="list-style-type: none"> ● Same as above. ● PBEM Duty Officer should: <ul style="list-style-type: none"> ○ Recommend convening a DPC conference call; and

Air Quality Rating	AQI ¹	PM2.5 Concentration 24-hour average (micrograms/cubic meter)	Recommended City Actions
			<ul style="list-style-type: none"> ○ Include information in Sit Stat report about: shelter in place procedures, advice to avoid driving when possible, run A/C on “re-circulate”. ○ Send citywide Everbridge alerts as directed by the DPC. ● The DPC should: <ul style="list-style-type: none"> ○ Plan for potential school closures; ○ Consider impacts to public health and employees of multiple bureaus for large City-sponsored outdoor events; ○ Consider Multnomah County, Oregon Health Authority and OR DEQ guidance; ○ Consider sending a Citywide email directive from the Mayor and pre-approved Everbridge alert message for flex time, working remotely, alternate work assignments, and/or closing City facilities; and ○ Consider sending other pre-approved Inclement Weather Notifications.
Hazardous	>300	Above 250	<ul style="list-style-type: none"> ● Same as above. ● PBEM should consider voluntary evacuation of sensitive groups.

2. ROLES AND RESPONSIBILITIES

1. The **Disaster Policy Council (DPC)** will use this guideline and current and forecasted air quality data to decide which recommended actions to implement at each meeting convened by the Mayor. Key decision makers are Mayor, HR Director, City Attorney, and Parks Director.
2. The **Mayor** can authorize work pay for hours not worked, if work cannot be completed due to unhealthy conditions and no other safe work options are available.
3. The **CAO or HR Director** will send citywide emails regarding City closures.
4. The **PBEM Duty Officer** should include air quality information and health guidance in the Duty Officer Daily Log and Situation Status Report, if applicable. They should recommend Bureau Operations Coordination meetings and DPC meetings at the appropriate levels. They will send citywide Everbridge alerts as directed by the DPC, to support Citywide messaging.

5. **Bureau emergency managers** should alert the safety manager as needed. **Bureau safety managers** are responsible for Oregon Occupational Safety and Health Administration (OSHA) compliance.
6. **Bureau Emergency Operations Coordination call members** will convene to discuss bureau operations across infrastructure and centralized service bureaus.
7. **Bureau Everbridge administrators** should create bureau-specific templates for unhealthy air messaging and train users..
8. **Supervisors of employees who work outside, and their employees** should read forwarded emails from internal City sources such as the PBEM Duty Officer. They should also monitor air quality throughout the day on days with elevated unhealthy air levels using mobile apps like “AirQuality” and “OregonAir”.
9. **Employees** who are sensitive to unhealthy air levels should alert their manager if they feel unable to work outside without proper protective equipment, and request alternate work assignments or flex time. Employees with a medical condition covered under the Americans with Disabilities Act can request reasonable accommodations. Employees should also ensure their contact information is up to date in SAP.
10. **Managers** should notify Labor Relations if the event requires a structured agreement to accommodate a longer duration incident than normal.

3. RESPIRATORS AND PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Bureaus should have appropriate PPE available for employees, based on their hazard assessments. In an air quality event, Bureaus should follow their PPE and respiratory protection programs for selection and use of PPE, such as fit testing. Respiratory and ocular protection may be warranted.
 - It should be noted that when an employee voluntarily chooses to wear a respirator and the employer allows the employee to use a respirator, certain elements of the Oregon OSHA Respiratory Protection Program (1910.134) must be established and implemented. Employees must sign a waiver when they choose to voluntarily wear a respirator. While fit testing through a bureau safety manager isn’t required for voluntary use, it is highly recommended.
 - Respirators are approved by the National Institute for Occupational Safety and Health (NIOSH). Only use “NIOSH-approved” respirators for protection.
- NIOSH-approved N95 or N100 masks may offer some protection; however, they will not filter out hazardous gases typically associated with wildfire smoke.
- Paper "comfort" or "dust" masks commonly found at hardware stores trap large particles, such as sawdust. Cloth face coverings used to stop the spread of COVID-19 also offer no protection. Face coverings and dust masks will not protect your lungs from smoke, small particulates, or hazardous gases.

For assistance with safety programs and PPE, contact your bureau safety manager or Risk Management.

4. CITY FACILITIES

City buildings are managed by either OMF Facilities or a bureau facilities department. They may be City owned or simply rented. When the City rents a space, we have less control over air filtration measures.

OMF Facilities improvises protocols to best meet the needs of its customers. Much of it is dependent on the facility systems and designated use. City facilities technicians do not have a means of measuring indoor AQI.

Due to the COVID-19 pandemic, OR-OSHA has recommended that building managers maximize outdoor air throughput, which OMF Facilities and City bureau facility managers follow, when the AQI is good or moderate (<100). However, based on best practice wildfire smoke recommendations, if the AQI exceeds 100, City-owned building managers would begin implementing poor air quality measures. This AQI level is the current OSHA benchmark for limiting outside air. Where possible, facilities techs would reduce or eliminate outside air and install MERV 13 filters if they are available and if the system allows for it. Bureaus using City-owned/OMF-managed facilities should notify OMF Facilities of their priorities for building use (based on need to support essential functions).

Note: Even when mitigated, indoor air during an unhealthy air event will still “smell like smoke”.

Relying on City Buildings during an Unhealthy Air Event

OMF Facilities recommends people stay home during extreme events as there is not much we can do to limit passive penetration of unhealthy air into buildings. The fewer entries into a building, the less poor air will enter the building due to negative pressure, so limiting to essential only employees helps as well and helps with the limited capacity of the HVAC systems during these times. Of all measures that we can take, limiting or shutting of the outside air of the HVAC systems is our most effective measure, more so than filtration.

Relying on MERV 13 filters

MERV 13 filters are the highest rated indoor HVAC filter, which is recommended to help capture dangerous particles from wildfire smoke. MERV 13 filters can be installed in roughly one day, depending on the systems and staffing. However, relying on these filters presents the following drawbacks:

- Not all HVAC systems can support MERV 13.
- Most facilities lack long term storage to keep stock on hand (at most stock enough for one change out). OMF Facilities is looking at solutions for prioritizing 24/7 facilities.
- A MERV 13 filter’s durability will depend on the level of pollution, length of the event, and building system.

5. MESSAGING TEMPLATES

Citywide Email templates

PRE-SEASON PREPARATION

It is a good idea to send a wildfire pre-season email to all City staff focusing on individual and home preparedness, and information on how wildfire smoke can affect health. This email could be sent out at the start of the annual fire season, as declared by the Oregon Department of Forestry. The sender could be the PBEM Director, Chief Administrative Officer, Mayor, or HR Director. PBEM will prepare the email.

Sample template:

“This week, the Oregon Department of Forestry declared an early start to the 2021 fire season in northeast Oregon. It is important for all of us to be prepared for the effects of wildfires in our area, both at home and at work.

At home: You can learn about how to prepare for wildfires and smoke at:

<https://www.publicalerts.org/hazards/wildfire-smoke>.

At work: During an unhealthy air event, essential functions of bureaus may be impacted. Now is a good time to review lessons learned from past events with bureau leadership and COOP managers, essential workers and vendors. Review internal emergency procedures with your emergency and safety managers. Talk with bureau facility managers and OMF Facilities about which buildings are essential. Make sure your contact information is up to date in SAP, so you can be contacted in an emergency.

The City has an operational guideline for Unhealthy Air events, which you can read here: [LINK]”

CLOSURES

Citywide building closures will be determined by the DPC, based on recommendations from staff. It is recommended for the DPC to decide the evening before the next day’s closure, so that the message can ideally be sent between 6 and 8 pm. At the latest, a message should be sent by 6 am for the same day, in order to reach workers who have early morning shifts.

The following email will be sent by the HR Director after a DPC decision to close City buildings and a Mayoral declaration of inclement weather emergency:

“**Air Quality Closure:** This message is for [MONTH DAY, YEAR]. Due to the hazardous air quality within our State and local area, all City offices will be closed [today/tomorrow/day of week]. Essential public safety employees are expected to report to work as required. City buildings will not be open to the public today and everyone is encouraged to stay inside. All other City employees are expected to remain available to work, in accordance with your union contract if applicable, and to report for critical needs if directed to so do by their Supervisor. Teleworkers are expected to continue to work from home If you are not available to work, you must use the appropriate accrual (sick, vacation, comp-time) to over your absence **PLEASE POST OR DISTRIBUTE FOR EMPLOYEES WITHOUT COMPUTER ACCESS**

HR Administrative Rule 4.11, Inclement Weather, provides additional details concerning compensation guidelines and expectations for employees. To read Rule 4.11, use one of these links: <https://www.portlandoregon.gov/citycode/article/12245>.

Please speak with your supervisor or manager if you have questions about HRAR 4.11 or your bureau's reporting procedures concerning inclement weather.

If the Mayor declares a weather emergency, employees can read the announcement on the City's web site at: <http://www.portlandoregon.gov/> or listen to a recording by calling (503) 823-4000.

Thank you for not using 'Reply to All' when responding to this message."

PBEM will send an Everbridge text alert to all City staff asking them to check their work email, to ensure that all employees receive this notification in a timely manner.

Sample template:

"Due to the continued hazardous air quality, all City offices will be closed [DAY, MONTH DATE, YEAR]. Essential public safety employees are expected to report to work as required. City buildings will not be open to the public. Check your work email or contact your supervisor for full details."

Bureau Everbridge template

The following Everbridge templates are available for use by any bureau Everbridge administrator, to use as directed by their bureau director.

TEXT

"Air quality levels may be unhealthy. Please check your email for guidance."

EMAIL

"Recognizing that the City has an obligation to perform essential functions and recognizing that the City has an obligation to protect its employees, here are some items to consider.

1. If possible, minimize staff's exposure to outside air to the extent possible. While ensuring that essential services are continued, prioritize other tasks that can be performed indoors.
2. Encourage your staff to take frequent breaks indoors. Ensure that they are well hydrated. To the extent possible, reduce their physical exertion.
3. Communicate with your staff, and make sure your staff can communicate with supervisors. If anyone is experiencing health effects, or have concerns due to respiratory conditions, please support them taking accrued leave for the balance of their shifts. Encourage any with health

concerns to consult their physicians.

4. Paper masks and cloth face coverings are ineffective. Please consult with your bureau safety officer or Risk Management for appropriate protection.

As this hot, dry summer continues, it could be well into October before fire season ends. Please continue to monitor DEQ's website when needed."

III. REFERENCES

1. STATE OF OREGON AND MULTNOMAH COUNTY

Below is the same EPA/DEQ Air Quality Index as above, with corresponding Multnomah County and State recommended public messaging and health actions.

				State Recommended Public Health Actions	
Air Quality Rating	AQI ³	PM2.5 Concentration 24-hour average (micrograms/cubic meter)	Multnomah County Recommended Public Messaging	Projected Smoke Exposure under 24 hours	Projected Smoke Exposure over 24 hours
Good	0-50	0-12	n/a	<ul style="list-style-type: none"> If smoke event is forecast in your area, review this Protocol, Crisis and Emergency Risk Communication Toolkit for Wildfires, Frequently Asked Questions about Wildfire Smoke and Public Health document, and more health tips on the Oregon Public Health Division webpage. The Oregon Smoke Blog has information about the latest air quality and other wildfire information: http://oregonSmoke.blogspot.com 	
Moderate	51-100	13-35	n/a	<ul style="list-style-type: none"> Distribute information (i.e., FAQs) to public health partners and the public Identify and provide information to vulnerable populations Refer people to Oregon Smoke Blog for more information Recommend sensitive groups use an air cleaner at home during wildfires 	<p><i>Follow recommended actions to the left and above, plus:</i></p> <ul style="list-style-type: none"> Respond to media inquiries. (Use the Crisis and Emergency Risk Communication toolkit for guidance)
Unhealthy for sensitive	101-150	36 – 55, expected to remain or	<ul style="list-style-type: none"> Basic health messaging 	<p><i>Above, plus:</i></p> <ul style="list-style-type: none"> Issue a press release, outlining sensitive groups and encouraging 	<p><i>Follow recommended actions to the left and above, plus:</i></p> <ul style="list-style-type: none"> In the release, include

³ Air Quality Index (AQI) and Particulate Matter (PM) 2.5 levels are from the Environmental Protection Agency (EPA) *Wildfire Smoke: A Guide for Public Health Officials*, Revised May 2016

				State Recommended Public Health Actions	
Air Quality Rating	AQI ³	PM2.5 Concentration 24-hour average (micrograms/cubic meter)	Multnomah County Recommended Public Messaging	Projected Smoke Exposure under 24 hours	Projected Smoke Exposure over 24 hours
groups		worsen for a period of several hours		<p>them to reduce exposure. (Use the Crisis and Emergency Risk Communication toolkit and FAQs document for guidance.)</p> <ul style="list-style-type: none"> If school is in session, refer to Public Health Guidance for School Outdoor Activities during Wildfire Events 	<p>consideration of sensitive groups leaving area until air quality improves or if that is not feasible, using air cleaner at home or spending time in a clean-air setting in the community (e.g., air-conditioned library)</p> <ul style="list-style-type: none"> Consider opening a clean-air shelter for sensitive groups
Unhealthy for all groups	151-200	56 – 150, expected to remain or worsen for a period of several hours	<ul style="list-style-type: none"> Recommendations for reduced outdoor exposure and activity for sensitive groups Reinforcement of disease management plans and strategies to improve indoor air quality 	<p><i>Above, plus:</i></p> <ul style="list-style-type: none"> Consider cancelling public events held outdoors Recommend public limit strenuous outdoor activities Recommend that sensitive groups consider leaving area until air quality improves. If they can't, recommend spending time in a clean-air setting in the community (i.e., air conditioned library) or sheltering in place at home 	<p><i>Follow recommended actions to the left and above, plus:</i></p> <ul style="list-style-type: none"> Open and publicize clean-air shelters for sensitive groups Review health benefits for sensitive groups of leaving area until air quality improves, and that intermittent time in clean-air shelters or sheltering in-place might not be as protective
Very unhealthy	201-300	151-250	<ul style="list-style-type: none"> Reflect avoidance of outdoor exposure and activity by sensitive groups Reinforcement of disease 	<p><i>Above, plus:</i></p> <ul style="list-style-type: none"> Cancel outdoor events If school is in session, measure indoor air quality if possible, discuss school closure with school administrators Recommend shelter-in-place for 	<p><i>Follow recommended actions to the left and above, plus:</i></p> <ul style="list-style-type: none"> Open and publicize clean-air shelters for sensitive groups

				State Recommended Public Health Actions	
Air Quality Rating	AQI ³	PM2.5 Concentration 24-hour average (micrograms/cubic meter)	Multnomah County Recommended Public Messaging	Projected Smoke Exposure under 24 hours	Projected Smoke Exposure over 24 hours
			management plans and strategies to improve indoor air quality	general population <ul style="list-style-type: none"> Share information about periods of improved air quality to guide essential outdoor activity and ventilation of dwellings (refer to FAQs for more information) 	
Hazardous	>300	Above 251	<ul style="list-style-type: none"> Reflect avoidance of outdoor activity by all groups, unless necessary Reinforcement of disease management plans and strategies to improve indoor air quality 	<i>Above, plus:</i> <ul style="list-style-type: none"> Recommend voluntary evacuation for sensitive groups 	<i>Follow recommended actions to the left and above, plus:</i> <ul style="list-style-type: none"> Open and publicize clean-air shelters for the general public

2. OREGON HEALTH AUTHORITY

Crisis and Emergency Risk Communication – Wildfire Smoke Toolkit:

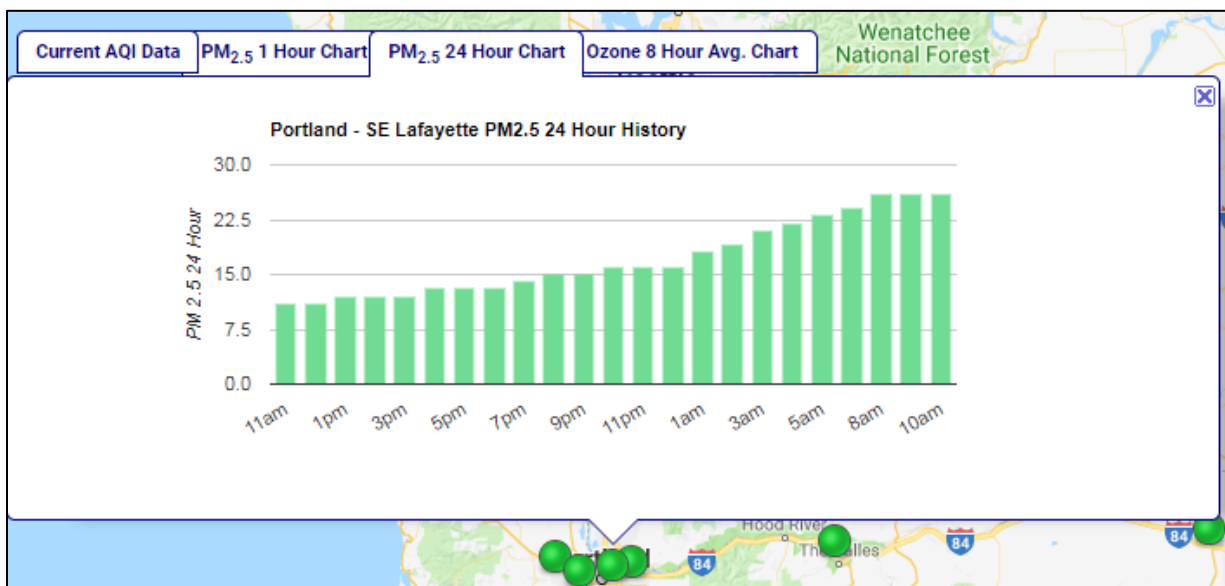
<http://www.oregon.gov/oha/PH/Preparedness/Partners/Pages/riskcommunicationtools.aspx>

FAQ, fact sheets, school guidance, videos, social media messaging, talking points about smoke, reducing exposure, masks and past press releases in English, Spanish, Russian, Simplified Chinese, Somali, and Vietnamese.

3. OREGON DEQ

DEQ Oregon Wildfire Response Protocol for Severe Smoke Episodes:

<http://www.oregon.gov/deq/FilterDocs/WFresponse.pdf>. Version 5.2, Aug 2017. This Protocol outlines which state agency is responsible for specific actions during severe smoke episodes, and provides recommended public health actions based on PM2.5 levels. It also includes links to relevant references and a contact list.

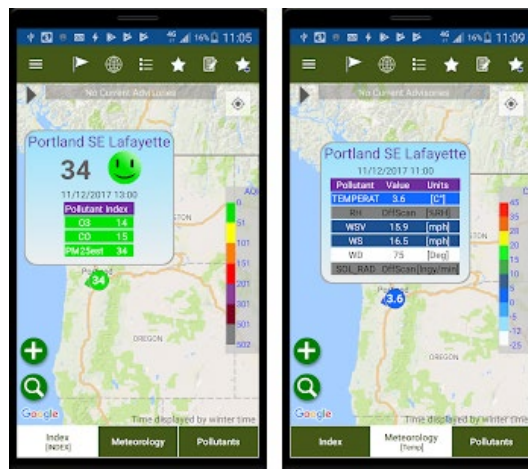


DEQ Air Quality Index: <http://www.deq.state.or.us/aqi/>

Hourly concentrations: <http://www.deq.state.or.us/lab/aqm/rt/rtHourlyConc.aspx>

Smartphone app: OregonAir. (Does not show Vancouver air monitor data.) Air Monitoring Stations near Portland:

- Sauvie Island
- Gresham
- SE Portland
- Beaverton
- Hillsboro
- The Dalles



4. OREGON SMOKE INFORMATION BLOG

<http://oregonsmoke.blogspot.com/>. This site is an effort by many city, county, tribal, state and federal agencies to coordinate and aggregate information for Oregon communities affected by wildfire smoke.

5. AIR NOW SMOKE MAP

<https://fire.airnow.gov/>. Shows satellite imagery of wildfire smoke plumes.

6. NATIONAL WEATHER SERVICE

During the summer season, NWS Portland posts daily fire weather briefings:

<https://www.wrh.noaa.gov/pqr/fwb.php>.

Heat Risk tool, which is similar to the AQI table: <https://www.wrh.noaa.gov/wrh/heatrisk>.

7. NATIONAL AGENCIES

Wildfire Smoke, A Guide for Public Health Officials, revised 2019. U.S. Environmental Protection Agency, U.S. Forest Service, U.S. Centers for Disease Control and Prevention, California Air Resources Board. <https://www.airnow.gov/publications/wildfire-smoke-guide/wildfire-smoke-a-guide-for-public-health-officials/>.

IV. OPERATIONAL GUIDELINE LOCATION AND REVIEW

- Location: PBEM Shared Drive S:\3. EMERGENCY OPERATIONS\6. Duty Officer\1. Operational Guidelines
- This OG should be revisited at the end of each summer’s wildfire season for potential updates by a PBEM Operations section member.
- PDF copies will be distributed to the DPC, Risk Management, City Attorney, OMF, HR, and to bureau safety and emergency managers.

Updated by	Katy Wolf, PBEM Operations Manager
Updated date	6/25/21